CIRCUIT DESCRIPTION
SWITCHING SYSTEMS DEVELOPMENT DEPARTMENT

CD-31865-01
Issue 1
Appendix 4-D
Dwg. Issue 5-D
APR 11 1952

STEP-BY-STEP SYSTEMS NO. 1, 350A OR 355A INCOMING TRUNK CIRCUIT TO TOLL INCOMING SELECTOR COMPOSITE SIGNALING TYPE B OR SIMPLEX SIGNALING

CHANGES

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 Figs.53, 54 and 55 are added.

D.2 Figs. 51 and 52 are rated A & M only for No. 1 and 350A offices.

D.3 Prior to issue 5D the title read

"STEP-BY-STEP SYSTEM
INCOMING TRUNK CIRCUIT
TO TOLL INCOMING SELECTOR
COMPOSITE SIGNALING TYPE B
OR SIMPLEX SIGNALING"

All other headings, no change.

BELL TELEPHONE LABORATORIES, INC.

DEPT. 3360-BSA-CGM-K1

STEP-BY-STEP SYSTEMS
INCOMING TRUNK CIRCUIT TO TOLL INCOMING SELECTOR COMPOSITE SIGNALING TYPE B OR SIMPLEX SIGNALING

CHANGES

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 Prior to this issue the Equipment Designation formerly read (INC TRK).

All other headings, no change.

BELL TELEPHONE LABORATORIES, INC.

DEPT. 3330-CEM-RLL-AB

CIRCUIT DESCRIPTION
SYSTEMS DEVELOPMENT DEPARTMENT

CD-31865-01
Issue 1
Appendix 2-D
Dwg. Iss. 3-D

STEP-BY-STEP SYSTEMS
INCOMING TRUNK CIRCUIT
TO TOLL INCOMING SELECTOR
COMPOSITE SIGNALING TYPE B
OR SIMPLEX SIGNALING

B. CHANGES IN APPARATUS

B.1 Superseded	Superseded By
"Z" option (SR) Y96 relay	"Y" option (SR) Y259 relay
"X" option (R) Y132 relay	"W" option (R) Y271 relay

C. CHANGES IN CIRCUIT REQUIREMENTS OTHER THAN THOSE APPLYING TO ADDED OR REMOVED APPARATUS

C.1 The adjustment for

		Soak	Opr.	Hold	Rel.
(SR) relay Y96 was	Test	40	19	2.7	0.7
	Readj.	40	18	2.5	1.1
(R) relay Y132	Test	70	54.5	8.2	1.9
	Readj.	70	51.5	7.8	2.1
(S) relay G98 P/S	Test	150			
	Readj.	150			
(S) relay G98 Sec	Test	300			
	Readj.				

C.2 Test note 4 is added.

D. DESCRIPTION OF CIRCUIT CHANGES

D.1 Circuit Note 102 added.

D.2 Y or Z added to relay (SR) and W or X to relay (R).

All other headings, No change.

BELL TELEPHONE LABORATORIES, INC.

DEPT. 3350-HCM-JLD

Printed in U. S. A.

STEP BY STEP SYSTEM
INCOMING TRUNK CIRCUIT TO TOLL INCOMING SELECTOR COMPOSITE SIGNALING TYPE B OR SIMPLEX SIGNALING

CHANGES

C. CHANGES IN CIRCUIT REQUIREMENTS OTHER THAN THOSE APPLYING TO ADDED OR REMOVED APPARATUS

C.1 The release adjustment for relay SR was, readj. 0.8.

C.2 Added test note "Adjacent relays shall not be energized. See B.S.P."

C.3 Removed blocking inf. for relay (SR) on ckt req. tables.

C.4 Added insulate inf. for relays (SR) on ckt req. tables.

All other headings, no change.

BELL TELEPHONE LABORATORIES, INC.

DEPT. 3350 RLQ-REK

STEP-BY-STEP SYSTEM
INCOMING TRUNK CIRCUIT TO TOLL INCOMING SELECTOR COMPOSITE SIGNALLING TYPE B OR SIMPLEX SIGNALLING

1. PURPOSE OF CIRCUIT

1.1 This circuit provides a direct connection between a CX signalling type B or SX signalling trunk and a toll incoming selector.

2. WORKING LIMITS

		Coin	Noncoin
2.1	Max. Ext. Ckt. Loop	1,500 Ohms	1,500 Ohms
	Min. Ins. Res.	10,000 "	10,000 "
	Max. Earth Potential	+ 20 V.-15 V.	+ 20 Volts

3. FUNCTIONS

3.1 To receive pulses from a CX or SX signalling trunk and repeat them on a loop basis into a toll incoming selector and subsequent switches.

3.2 To provide a path for connecting ground forward to hold the succeeding switches.

3.3 To transfer from the pulsing to the transmission condition when the terminals of the called line have been reached.

3.4 To start machine ringing in the associated toll connector when the latter switch cuts through to the called line terminals.

3.5 To provide toll grade transmitter battery supply to the called subscriber.

3.6 To provide switchhook supervision to the calling operator.

3.7 To provide means for testing the pulse repeating relay.

3.8 To provide all trunks busy registration.

4. CONNECTING CIRCUITS

4.1 Toll Incoming Selector.

4.2 CX Signalling Circuit Type B.

4.3 SX Signalling Circuit.

4.4 Traffic Register Circuit.

4.5 Repeating Coil and Compromise Network Circuit.

4.6 Repeating Coil Circuit.

4.7 Step-by-Step Pulsing Test Set.

DESCRIPTION OF OPERATION

5. SEIZURE AND PULSING

When the CX or SX signalling circuit seizes this trunk by connecting ground to the "E" lead, (A) operates to operate (R) and (SR). (SR) connects ground forward to the "S" lead, opens a multiple ground on the "BR" lead to the register circuit, prepares the operating and locking circuit of (CT) and closes the "T" and "R" through to the (CT) relay contacts. (R) operated, locks to the "C" lead from ground furnished by (SR) on the "S" lead through a break contact of a relay in the succeeding switch, opens the "T" and "R" talking path from the succeeding switch, closes the pulsing contact of the (A) to the "T" and "R" to the incoming selector and closes the operating circuit of (CT). (CT) locks to (SR), opens the operating circuit of (R), closes the "T" and "R" of the trunk to break contacts on the (R), and prepares a circuit to connect ground to the "C" lead to provide a locking circuit for the toll connector tripping relay when the (R) releases.

6. CUT THROUGH AND RINGING START

When the associated toll connector cuts through to the terminals of the called line, the connection between the "C" and "S" leads is opened in the connector which allows the (R) to release. (R) is slow releasing to allow the tripping relay in the connector to release before reconnecting the "S" to the "C" lead. The relay released in the connector, connects ringing current to the called line. (R) released, opens the operating circuit of (CT) which remains locked to (SR). The release of (R) connects the "C" to the "S" lead to provide a locking path for the tripping relay in the toll connector. (R) released transfers the outgoing "T" and "R" from the pulsing contacts of the (A) to the repeating coil, circuit, (S) relay and (B) ballast

lamp to provide toll grade transmitter battery supply to the called station. The succeeding switches are held from ground supplied forward over the "S" lead. When the called subscriber answers, the (S) operates and disconnects ground and connects battery through the (A) lamp to the "M" lead to give the calling operator off-hook supervision.

7. DISCONNECT

When the called subscriber disconnects, (S) releases and disconnects battery and connects ground to the "M" lead to give the calling operator on-hook supervision. When the calling operator disconnects, the CX or SX signalling circuit removes ground from the "E" lead which releases (A), thereby releasing (SR) which removes ground from the "S" lead to permit the succeeding switches to release, unlocks (CT) and opens the outgoing tip and ring. (CT) released reconnects ground to the "BR" lead, opens the connection between the "C" and "S" leads and recloses in part the operating circuit of (R) in preparation for the next call. When the (CT) released, the circuit is restored to normal.

8. TEST JACKS

The (T) jack provides means for connecting to the trunk for pulsing and trunk operation tests.

BELL TELEPHONE LABORATORIES, INC.

DEPT. 332

JGW)
RSW)YD